

What's a Hydrogen Blended Fueled Vehicle?

DOE's Advanced Vehicle Testing Activity (AVTA) has teamed with Pinnacle West (holding company of Arizona Public Service) and Electric Transportation Applications to construct and operate a hydrogen and compressed natural gas (CNG) generation and [fueling facility](#) in Phoenix, Arizona. The APS Alternative Fuel Pilot Plant provides pure hydrogen, pure CNG, or hydrogen/CNG (H/CNG) blends to the various internal combustion engine (ICE) test vehicles as well as fuel cell vehicles being tested by original equipment manufacturers (OEM) at some of the seven test tracks in the Phoenix area.



When used as a fuel in ICEs, either as 100% hydrogen or as a blended fuel with CNG, hydrogen appears to offer reduced air emissions and maintenance benefits, and it may provide power benefits as well. However, the economics of 100% hydrogen-powered or H/CNG-powered vehicles are not well defined. Concurrently, hydrogen infrastructure requirements, including hydrogen production and storage, are another area that requires greater understanding and development.

The H/CNG facility is used to fuel ICE test vehicles that require 100% hydrogen, 100% CNG, or H/CNG blended fuels. Some of these test vehicles have included a 100% hydrogen ICE Mercedes Benz van and two H/CNG ICE Ford F150 pickups operating on H/CNG blends up to 50% hydrogen. In addition to the above vehicles, the AVTA and its testing partners has initiated fleet testing of H/CNG ICE vehicles operating at 15% hydrogen in a government fleet and a utility fleet in the greater Phoenix area. After the development of hydrogen ICE vehicle testing procedures and specifications, a 100% hydrogen-power ICE Ford F150 pickup will be baseline performance and accelerated reliability tested.



In addition to providing hydrogen-powered ICE vehicle knowledge, operating these vehicles provides hydrogen and H/CNG fueling interface experience. When additional 100% hydrogen and H/CNG blend ICE vehicles become available they will be evaluated as candidates for testing.

Hydrogen is also widely anticipated to be the future fuel of choice for vehicles equipped with fuel cells, but currently, no commercially viable fuel cell vehicles are available for testing.

However, development of fuel cell vehicles continues in earnest by vehicle manufacturers and other groups such as [DOE's FreedomCar & Vehicle Technologies Program](http://www.eere.energy.gov/vehiclesandfuels/) at <http://www.eere.energy.gov/vehiclesandfuels/>.